DIRECTIVE

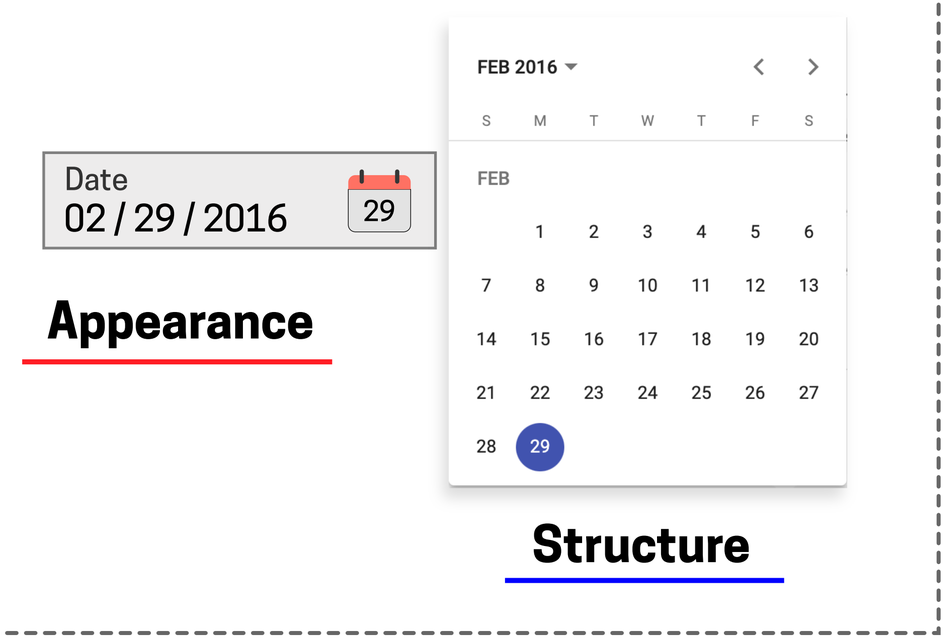
Directives enhance the capability of **elements** by adding additional **behavior** and can alter the **structure**

Behavior

Date

Element

Enhancement



Directives can be applied to **HTML** elements, **Component** or to other **Directives**

DIRECTIVE - TYPES

CUSTOMIZATION

ATTRIBUTE

Appearance & Behavior

* Attributes such as class, id, style & etc.
* Event Listeners add / remove
* Custom behaviors

Examples: NgClass | NgStyle

ASTERISK (*) PREFIX

STRUCTURAL

Structure & Layouts

* Add / remove elements
* Re-shape views & layouts
* Generate template views

Examples: NgIf | NgFor

COMPONENT

Directive with Template

* HTML view template
* Composition of UI & Logic

ATTRIBUTE DIRECTIVE

```
<input
   dateInput
   leapYear="false"
   (dateChanged)="takeAction($event)"
/>
```

```
@Directive ({
  selector: "[dateInput]"
})
class DateInputDirective {
  @Input( ) leapYear;
  @Output( ) dateChanged;
}
```

STRUCTURAL DIRECTIVE

```
<div *ngFor="let name, let i = index; of: names, trackBy: trackFn;">
  {{ i }} {{ name }}
</div>
```

Selector + PascalCase (Property Name)

```
@Directive ({
   selector: "[ngFor]"
})

class NgForDirective {

    @Input( ) ngForOf;        1

    @Input( ) ngForTrackBy;

    createEmbeddedView(templateRef, {
2      index: itemIndex,
      $implicit: item
    })
}
```

Loop

HOST REFERENCES

```
<input dateInput />
```

1

```
@Directive ({...})
class DateInputDirective {
  constructor (elmRef: ElementRef )
  { ... }
}
```

ELEM + VCR

```
<app-list listView > </app-list>
```

2

```
@Directive ({...})
class ListViewDirective {
  constructor (cmp: ListComponent)
  { ... }
}
```

ELEM + **CMP** + VCR

```
<ng-template tabContent > ... </ng-template>
```

3

```
@Directive ({...})
class TabDirective {
  constructor (tRef: TemplateRef)
  { ... }
}
```

ELEM + **TREF** + VCR

```
<div *dictLoop="..." > </div>
```

4

```
@Directive ({...})
class LoopDirective {
  constructor (
  tRef: TemplateRef,
  vcRef: ViewContainerRef )
  { ... }
}
```

ELEM + **TREF** + **VCR**

In the case of **Structural Directive** we get both **TemplateRef** & **ViewContainerRef**

DIRECTIVE LIFECYLE

ngOnChanges

@Input bound props sets/resets

ngOnInit

Directive initialized

ngDoCheck

Place to detect changes
that Angular won't detect

ngAfterContentInit

Projected external content into the view
that a directive is in

ngAfterContentChecked

External content checked into the view
that a directive is in

ngAfterViewInit

View initialized that a directive is in

ngAfterViewChecked

View Checked that a directive is in

ngOnDestroy

Before destroying the view
that a directive is in

COMMON USE CASES

Appearance customization
Add/update the class, style, other attributes

Events
Add/remove DOM events on element

Custom Events
Like dateChanged, listItemAdded etc.

Layout & Structure
Add/remove the elements, manipulate the elements node structure

Interception
Intercept the behavior and do something else or perform actions

Validations
Validate inputs inside forms

Identification

* To ref the elements & use them in ViewChild, ViewChildren, & ContentChild, ContentChildren

* To find or extract the elements in Directive, Component or at other places

* To provide the context and intent

Computer Baba

AJIT

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